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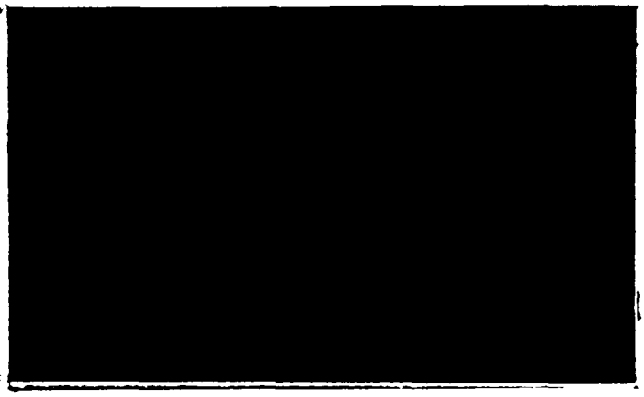
REM III PROGRAM

REMEDIAL PLANNING ACTIVITIES AT SELECTED UNCONTROLLED HAZARDOUS SUBSTANCE DISPOSAL SITES WITHIN EPA REGIONS I-IV



EPA CONTRACT 68-01-7250

EBASCO SERVICES INCORPORATED

EPA WORK ASSIGNMENT NUMBER: 39-2661
EPA CONTRACT NUMBER: 68-01-7250
EBASCO SERVICES INCORPORATED

FIELD SAMPLING AND ANALYSIS PLAN
RI/FS OVERSIGHT
NL INDUSTRIES SITE
PEDRICKTOWN, NEW JERSEY

APRIL, 1988

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EBASCO SERVICES INCORPORATED

160 Chubb Avenue, Lyndhurst, NJ 07071 (201) 460-1900

EBASCO

May 3, 1988
RMOII-88-150

Mr. M. Shaheer Alvi, P.E.
Regional Project Officer
US Environmental Protection Agency
26 Federal Plaza
Room 737
New York, New York 10278

Mr. Kerwin Donato
Remedial Project Manager
US Environmental Protection Agency
26 Federal Plaza
New York, New York 12078

SUBJECT: REM III PROGRAM - EPA CONTRACT NO. 68-01-7250
WORK ASSIGNMENT NO. 39-2661
FIELD SAMPLING AND ANALYSIS PLAN
FOR NL INDUSTRIES SITE

Dear Mr. Alvi and Mr. Donato:

Enclosed are three copies of Ebasco's Final Field Sampling and Analysis Plan (FSAP) for the NL Industries Site. This FSAP has been revised to be consistent with certain changes in the QA Plan Short Form requested by Ms. Lisa Vidulich of EPA. As indicated in the Draft FSAP, Ebasco assumes that continuous oversight of O'Brien and Gere's field operations will be performed and that approximately 15% of the field samples collected by O'Brien and Gere will be split for analysis by a CLP laboratory. As previously requested by EPA, all solid sample splits for submission to the CLP program will be made by O'Brien and Gere following sample compositing and homogenizing in their own laboratory.

If you have any questions on this matter, please feel free to contact me at (201) 460-6434 or Lew Horzempa at (201) 460-6113.

Please sign and return a copy of this letter to me at the Lyndhurst, New Jersey address, indicating the date of receipt of the enclosed.

Very truly yours,

Dev R. Sachdev

Dev R. Sachdev, Ph.D., P.E.
Regional Manager - Region II

Enc.
cc: D. J. Sarno (EPA)
M. K. Yates (ZPMO)
M. Amdurer (ZPMO)
L. Horzempa

EBASCO SERVICES INCORPORATED

160 Chubb Avenue, Lyndhurst, NJ 07071 · (201) 460-1900

EBASCO

Mr. M. Shaheer Alvi, P.E.
Mr. Kerwin Donato

SUBJECT: REM III PROGRAM - EPA CONTRACT NO. 68-01-7250
WORK ASSIGNMENT NO. 39-2661
FIELD SAMPLING AND ANALYSIS PLAN
NL INDUSTRIES

ACKNOWLEDGMENT OF RECEIPT

Please acknowledge receipt of this enclosure on the duplicate copy of this letter and return it to the sender at the above address:

Signature _____ Date _____

EPA WORK ASSIGNMENT NUMBER: 39-2661
EPA CONTRACT NUMBER: 68-01-7250
EBASCO SERVICES INCORPORATED

FIELD SAMPLING AND ANALYSIS PLAN
RI/FS OVERSIGHT
NL INDUSTRIES SITE

PEDRICKTOWN, NEW JERSEY

APRIL, 1988

Prepared by:

Lewis M. Horzempa, Ph.D.
Site Manager
Ebasco Services Incorporated

Approved by:

Dev Sachdev, Ph.D., P.E.
Regional Manager - Region II
Ebasco Services Incorporated

FIELD SAMPLING AND ANALYSIS PLAN

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1.0 INTRODUCTION

This document presents the Field Sampling and Analysis Plan (FSAP) for the RI/FS oversight activities to be undertaken by Ebasco Services Incorporated (Ebasco) at the NL Industries Site in Pedricktown, New Jersey. The FSAP defines the procedures to be followed during all oversight activities. Specifically, the FSAP addresses:

- Procedures for Activities Related to Receipt of Split Samples
- Number, Location and Types of Samples
- Chain-of-Custody
- Sample Packaging and Shipment
- Decontamination
- QA/QC of Field Sampling and Procedures for Field Changes and Corrective Actions
- Responsibilities of Site Personnel

The procedures and QA/QC protocol are in accordance with REM III and EPA Region II guidelines and the REM III and site-specific Health and Safety Plan. Any changes required in these procedures and protocols due to field conditions should be recorded in the site logbook by the Field Operations Leader, and documented on a Field Change Request Form, Figure 3-1.

The purpose of the oversight is to observe O'Brien and Gere's Phases I and II field work activities as described in approved project procedures. Ebasco will also collect split samples for analysis and data comparison. Ebasco will also review and comment on O'Brien and Gere's Remedial Investigation and Feasibility Study draft reports.

2.0 GENERAL SITE OPERATIONS

2.1 BRIEF DESCRIPTION OF SAMPLING PROGRAM

For the oversight effort, Ebasco will receive 50 split samples (Table 2-1) from O'Brien and Gere. In addition Ebasco will receive field blank split samples from O'Brien and Gere as identified in Table 2-2. These samples will be analyzed by a laboratory which participates in the EPA Contract Laboratory Program. Soil, solid and liquid waste, sediment and water samples will be collected. Samples will be analyzed for differing arrays of parameters as summarized in Tables 2-1, 2-2 and 2-3. These are briefly discussed as follows.

O'Brien and Gere will collect 126 soil samples from both on and off-site locations to be analyzed for total lead and an additional 14 soil samples to be analyzed for total lead and selected trace metals. Ebasco proposes that 19 soil sample splits be submitted for total lead analysis and three soil sample splits be submitted for total lead and selected trace metal analysis.

O'Brien and Gere will collect a total of 25 containerized solid and 10 equipment residue samples from on-site locations for total lead analysis. Ebasco proposes that a total of four containerized solid and two equipment residue sample splits be submitted for CLP total lead analysis.

A total of three solid slag samples will be collected by O'Brien and Gere for total lead analysis and EP toxicity test leachate metal analysis. Ebasco proposes that one sample split be submitted for similar CLP analyses.

O'Brien and Gere will collect a total of 16 containerized-liquid samples for total lead, pH, and TOC analysis. Ebasco proposes to collect a total of two containerized liquid split samples from O'Brien and Gere for the same analyses. In addition, O'Brien and Gere will collect a total of four containerized liquid samples for total lead, pH, TOC, TOX, gross alpha and gross beta analysis. In this case Ebasco will receive a total of one sample for the same analysis.

O'Brien and Gere will collect a variety of surface and ground water and sediment samples during two sampling rounds. O'Brien and Gere will collect a total of 10 surface water samples for total lead analyses and one sample for total lead and additional trace metal analyses during the first sampling round. The same number of samples will be collected during the second sampling round. Ebasco will receive one sample for lead analysis and one sample for trace metal analysis during the first sampling round and one sample for lead analysis during the second sampling round.

O'Brien and Gere propose to collect a total of 10 sediment samples for lead analysis and one sample for lead and additional

TABLE 2-1

NL INDUSTRIES SITE ENFORCEMENT SUPPORT PROPOSED SPLIT SAMPLING FREQUENCY(1)

SAMPLE MATRIX	TOTAL NUMBER OF SAMPLES	LAB SIEVE	DIGESTION	ANALYSIS						PROPOSED NUMBER OF EBASCO SPLIT SAMPLES
				LEAD	TRACE METALS	EP TOXICITY METALS	pH	TOC	TOX/GROSS ALPA GROSS BETA	
SOIL	126	+	+	+	-	-	-	-	-	19
	14	+	+	+	+	-	-	-	-	3
SLAG	3	+	+	+	-	+	-	-	-	1
CONTAINERIZED SOLIDS	25	+	+	+	-	-	-	-	-	4
EQUIPMENT RESIDUE	10	+	+	+	-	-	-	-	-	2
CONTAINERIZED LIQUIDS	16	-	-	+	-	-	+	+	-	2
	4	-	-	+	-	-	+	+	+	1
									Subtotal	32

NOTES (1) Based on O'Brien & Gere Work Plan (Table 3) May 1987
Trace metals-indicates antimony, arsenic, cadmium, chromium, copper, selenium, tin and zinc
TOC - indicates total organic carbon
TOX - indicates total organic halogens
Lab Sieving - indicates that soil samples will be sieved through a sixteen mesh stainless steel sieve after drying (8 hours an 100C or until dry) prior to analysis. Equipment residue and containerized solid samples will be dried and sieved through a 9.5 mm standard sieve prior to analysis. Samples will be sieved at O'Brien and Gere's laboratory.

TABLE 2-1 Cont'd

NL INDUSTRIES SITE ENFORCEMENT SUPPORT PROPOSED SPLIT SAMPLING FREQUENCY(1)

SAMPLE MATRIX	TOTAL NUMBER OF SAMPLES	DIGESTION	ANALYSIS						PROPOSED NUMBER OF EBASCO SPLIT SAMPLES
			LEAD	TRACE METALS*	pH	TRACE METALS AND INORGANICS**	PP-METALS AND CYANIDE	PP-ORGANICS	
SURFACE WATER									
ROUND-1	10	-	+	-	+	-	-	-	1
	1	-	+	+	+	-	-	-	1
ROUND-2	10	-	+	-	-	-	-	-	1
	1	-	+	+	-	-	-	-	0
SEDIMENT	10	+	+	-	-	-	-	-	2
	1	+	+	+	-	-	-	-	0
MARSH SEDIMENT	8	+	+	-	-	-	-	-	1
GROUNDWATER WATER TABLE AQUIFER									
ROUND-1	21	-	+	-	-	+	-	-	3
	3	-	+	-	-	+	+	-	1
ROUND-2	21	-	+	-	-	+	-	-	3
	3	-	+	-	-	+	-	+	1
FIRST CONFINED AQUIFER									
ROUND-1	4	-	+	-	-	+	-	-	0
	1	-	+	-	-	+	+	-	1
ROUND-2	4	-	+	-	-	+	-	-	0
	1	-	+	-	-	+	+	-	1
OFF-SITE WATER SUPPLY									
ROUND-1	9	-	+	-	-	+	-	-	1
ROUND-2	9	-	+	-	-	+	-	-	1
								TOTAL	50

NOTES (1) Based on O'Brien & Gere Work Plan (Table-3) May 1987 and Site Operations Plan (revised December 1987)

* Trace metals - indicates antimony, arsenic, cadmium, chromium, copper, selenium, tin and zinc
PP - indicates priority pollutants or for Ebasco CLP analyses, target compound list (TCL) parameters
For on-site ground water samples for trace metal analyses, both filtered and unfiltered samples for trace metals and lead may be received.

** Trace metals - indicates antimony, arsenic, cadmium, chromium, copper, lead, and selenium
Inorganics - indicates sulfate, chloride, TOC, TOX, gross alpha and gross beta
PP - indicates priority pollutant

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TABLE 2-2
NL INDUSTRIES SITE ENFORCEMENT EBASCO QA/QC SAMPLES

QA/QC SAMPLE TYPE	SAMPLING MATRIX	NUMBER OF SAMPLES	ANALYSES			
			LEAD	TRACE METALS AND INORGANICS	TCL ORGANICS	TCL VOLATILE ORGANICS
Field Blanks	Soil	3	+	-	-	-
	Containerized Solids	1	+	-	-	-
	Equipment Residue	1	+	-	-	-
	Sediment/ Marsh Sediment	1	+	-	-	-
	Surface Water	1	+	-	-	-
	Ground Water					
	Round 1	1	+	+	-	-
	Round 2	1	+	+	+	-
Trip Blanks	Ground Water					
	Round 2	1	-	-	-	+
Cotaminant Free Water	-	3	+	+	-	-

Note:

1) Contaminant free water will be analyzed for lead and other TCL metals only.
Trace Metals - indicates antimony, arsenic, cadmium, chromium, copper, and selenium
Inorganics - indicates sulfate, chloride, TOC, TOX, gross alpha, and gross beta

TABLE 2-3

SAMPLE COLLECTION AND ANALYSIS PROTOCOLS[1]

SAMPLE MATRIX	ANALYSIS PARAMETER	NUMBER OF SAMPLES	SAMPLE CONTAINER	SAMPLE VOLUME	PRESERVATIVE	LABORATORY HOLD TIME	ANALYSIS METHOD
SOIL	LEAD	22	8 OZ WIDE MOUTH GLASS JAR	FILL CONTAINER	NONE REQUIRED	6 MONTHS	EPA-CLP-IFB(7/87)
	TRACE METALS*	3	8 OZ WIDE MOUTH GLASS JAR	FILL CONTAINER	NONE REQUIRED	6 MONTHS	EPA-CLP-IFB(7/87) TIN-EPA-7870 (SW 846; 11/86)
CONTAINERIZED SOLIDS	LEAD	4	8 OZ WIDE MOUTH GLASS JAR	FILL CONTAINER	NONE REQUIRED	6 MONTHS	EPA-CLP-IFB(7/87)
SLAG	LEAD	1	8 OZ WIDE MOUTH GLASS JAR	FILL CONTAINER	NONE REQUIRED	6 MONTHS	EPA-7420 (SW-846)
	RCRA-EP TEST[2] (METALS ONLY)	1	8 OZ WIDE MOUTH GLASS JAR	FILL CONTAINER	NONE REQUIRED	6 MONTHS	EPA-1310 SW-846(11/86)
	ARSENIC	1	8 OZ WIDE MOUTH GLASS JAR	FILL CONTAINER	NONE REQUIRED	6 MONTHS	EPA-7060
	BARIUM	1	8 OZ WIDE MOUTH GLASS JAR	FILL CONTAINER	NONE REQUIRED	6 MONTHS	EPA-7080
	CADMIUM	1	8 OZ WIDE MOUTH GLASS JAR	FILL CONTAINER	NONE REQUIRED	6 MONTHS	EPA-7130
	CHROMIUM	1	8 OZ WIDE MOUTH GLASS JAR	FILL CONTAINER	NONE REQUIRED	6 MONTHS	EPA-7190
	LEAD	1	8 OZ WIDE MOUTH GLASS JAR	FILL CONTAINER	NONE REQUIRED	6 MONTHS	EPA-7420
	MERCURY	1	8 OZ WIDE MOUTH GLASS JAR	FILL CONTAINER	NONE REQUIRED	6 MONTHS	EPA-7470
	SELENIUM	1	8 OZ WIDE MOUTH GLASS JAR	FILL CONTAINER	NONE REQUIRED	6 MONTHS	EPA-7740
	SILVER	1	8 OZ WIDE MOUTH GLASS JAR	FILL CONTAINER	NONE REQUIRED	6 MONTHS	EPA-7760
EQUIPMENT RESIDUE	LEAD	2	8 OZ GLASS JAR	FILL CONTAINER	NONE REQUIRED	6 MONTHS	EPA-CLP-IFB(7/87)
CONTAINERIZED LIQUIDS	LEAD	3	1 LITER POLY-ETHYLENE	FILL CONTAINER	1-N HNO_3 to pH-2 Cool to 4°C	6 MONTHS	EPA-CLP-IFB(7/87)
	TOC	1	2-40 ML GLASS VIALS	FILL CONTAINER	1-N HCL or (4°C) H_2SO_4 to pH-2	28 DAYS	EPA-9060 (SW-846,11/86)
	GROSS ALPHA AND GROSS BETA	1	4-1 LITER POLY-ETHYLENE	1 GAL	1-N HNO_3 pH-2	-	EPA-9310 (SW-846,11/86)

TABLE 2-3 (Cont'd)

SAMPLE COLLECTION AND ANALYSIS PROTOCOLS(1)

SAMPLE MATRIX	ANALYSIS PARAMETER	NUMBER OF SAMPLES	SAMPLE CONTAINER	SAMPLE VOLUME	PRESERVATIVE	LABORATORY HOLD TIME	ANALYSIS METHOD
CONTAINERIZED LIQUIDS (Cont'd)	TOTAL ORGANIC HALOGENS (TOX)	1	2-250 ML AMBER GLASS	FILL CONTAINER NO HEADSPACE	1-N H_2SO_4 to pH-2. Cool to 4°C	7 DAYS	EPA-9020 (SW-846,11/86)
SURFACE WATER	LEAD	3	1 LITER POLY-ETHYLENE	1 LITER	1-N HNO_3 to pH-2 Cool to 4°C	6 MONTHS	EPA-CLP-IFB (7/87)
	TRACE METALS*	1	1 LITER POLY-ETHYLENE	1 LITER	1-N HNO_3 to pH-2 Cool to 4°C	6 MONTHS	EPA-CLP-IFB (7/87) TIN-EPA-7870 (SW-846, 11/86)
SEDIMENT/MARSH SEDIMENT	LEAD	3	8 OZ WIDE MOUTH GLASS JAR	6 OZ.	NONE REQUIRED	6 MONTHS	EPA-CLP-IFB (7/87)
GROUND WATER AND WATER SUPPLY(4)	LEAD AND TRACE METALS**	12	1 LITER POLY-ETHYLENE	1 LITER	1-N HNO_3 to pH-2 Cool to 4°C	6 MONTHS	EPA-CLP-IFB (7/87)
	CYANIDE	3	1 LITER POLY-ETHYLENE	1 LITER	1-N NaOH to pH-12 Cool to 4°C	14 DAYS	EPA-CLP-IFB (7/87)
	CHLORIDE	3	120 ml POLY-ETHYLENE OR GLASS	50 ML	COOL 4°C	28 DAYS	EPA 325.1-.3(3)
	TOX	3	2-250 ML AMBER GLASS	FILL CONTAINER	1-N H_2SO_4 to pH-2 COOL 4°C	7 DAYS	EPA 9020 (SW-846, 11/86)
	SULFATE	3	120 ml POLY-ETHYLENE	50 ML	COOL 4°C	28 DAYS	EPA 375.1-.4(3)
	TOC	3	2-40 ML GLASS VIALS	FILL CONTAINER	COOL 4°C 1-N HCL to pH-2	28 DAYS	EPA 9060 (SW-846, 11/86)
	GROSS ALPHA AND GROSS BETA	3	4-1-LITER POLY-ETHYLENE	1 GAL	1 N HNO_3 to pH-2	6 MONTHS	EPA 9310 (SW-846, 11/86)
	TCL VOLATILES	1	2-40 ML GLASS VIALS	FILL CONTAINER NO HEADSPACE	COOL 4°C: HCl to pH-2	10 DAYS	EPA-CLP-IFB (10/86)
	TCL EXTRACTABLES	1	2-1/2 GAL AMBER GLASS BOTTLES	1 GAL	COOL 4°C	EXTRACTION WITHIN 5 DAYS; ANALYSIS WITHIN 40 DAYS	EPA-CLP-IFB (10/86)

TABLE 2-3 (Cont'd)

SAMPLE COLLECTION AND ANALYSIS PROTOCOLS(1)

SAMPLE MATRIX	ANALYSIS PARAMETER	NUMBER OF SAMPLES	SAMPLE CONTAINER	SAMPLE VOLUME	PRESERVATIVE	LABORATORY HOLD TIME	ANALYSIS METHOD
FIELD BLANKS AND DEIONIZED WATER BLANKS	LEAD	12	1-LITER POLY-ETHYLENE	1-LITER	1-N HNO_3 to pH -2 Cool to 4°C	6 MONTHS	EPA-CLP IFB (7/87)
	TRACE METALS AND INORGANICS	5	1-LITER POLY-ETHYLENE	1-LITER	1-N HNO_3 to pH -2 Cool to 4°C	6 MONTHS	EPA-CLP IFB (7/87)
	TCL VOLATILES	1	2-40 ML GLASS VIALS	FILL CONTAINER NO HEADSPACE	COOL to 4°C 1-N HCl to pH -2	10 DAYS	EPA-CLP IFB (10/86)
	TCL EXTRACTABLES	1	2-1/2 GAL AMBER GLASS BOTTLES	1 GAL	COOL to 4°C	EXTRACTION-WITHIN 5 DAYS ANALYSIS WITHIN 40 DAYS	EPA-CLP IFB (10/86)
	SULFATE	3	120 ML POLY-ETHYLENE	50 ML	COOL to 4°C	28 DAYS	EPA 375.1-.4(3)
	CHLORIDE	3	120 ML POLY-ETHYLENE	50 ML	COOL to 4°C	28 DAYS	EPA 325.1-.3(3)
	TOX	3	2-250 ML AMBER GLASS	FILL CONTAINER	1-N H_2SO_4 to pH-2 COOL to 4°C	7 DAYS	EPA 9020 (SW-846, 11/86)
	TOC	3	2-40 ML GLASS	FILL CONTAINER	COOL to 4°C 1-N HCL to pH-2	28 DAYS	EPS 9060 (SW-846, 11/86)
	GROSS ALPHA AND GROSS BETA	3	4-1 LITER POLY-ETHYLENE	1 GAL	1-N HNO_3 to pH-2	6 MONTHS	EPA 9310 (SW-846, 11/86)
	CYANIDE	3	1 LITER POLY-ETHYLENE	1 LITER	1-N NaOH to pH-2 Cool to 4°C	14 DAYS	EPA-CLP IFB (7/87)
TRIP BLANKS	TCL VOLATILES	1	2-40 ML GLASS VIALS	FILL CONTAINER NO HEADSPACE	COOL to 4°C 1-N HCl to pH -2	10 DAYS	EPA-CLP IFB (10/86)

NOTES

1) - Although appropriate collection and analysis methods are listed for completeness, Ebasco will not receive any solid sample splits from O'Brien and Gere in the field.
* - Trace metals to be analyzed include antimony, arsenic, cadmium, chromium, copper, selenium, tin and zinc.
** - Trace metals to be analyzed include antimony, arsenic, cadmium, chromium, copper, and selenium.
2) - RCRA-EP Metals - arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver - to be analyzed by SW-846 (11/86)
3) - Reference - EPA Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020) (March 1983).
4) - Available information indicates that none of the private wells employ chlorination. If any chlorinated water supplies are encountered, cyanide samples will be preserved with ascorbic acid (0.6 gm) and TCL volatile organics with 0.008% sodium thiosulfate (2-3 granules).

trace metals. Ebasco proposes that two sediment samples be submitted for total lead analysis. In addition, O'Brien and Gere will collect eight marsh sediment samples for total lead analysis. Ebasco proposes that one marsh sediment sample be submitted for the same analysis.

O'Brien and Gere propose to collect a total of 24 samples from the water table aquifer and five samples from the first confined aquifer during the first sampling round. Twenty-five (25) of these samples will be analyzed for trace metals and inorganics (see Table 2-1) and four samples for trace metals, inorganics and priority pollutant metals and cyanides. Ebasco will receive a total of three water table sample splits for trace metal and inorganic analysis and two sample splits (one water table, one confined aquifer) for trace metal, inorganic and target compound list metal analysis. O'Brien and Gere may collect samples for both filtered and unfiltered trace metals. Ebasco will receive samples splits which are identical (filtered or unfiltered) to the corresponding O'Brien and Gere sample. O'Brien and Gere will collect two ground water samples for anlysis of radium, uranium, thorium isotopes, lead-210 and potassium-40. Due to the small sample numbers, Ebasco does not propose to receive any splits of these samples.

Also during the first sampling round O'Brien and Gere will collect nine unfiltered water supply samples from off-site private residences. Ebasco proposes to receive one sample for CLP analysis of lead, trace metals and inorganics. Ebasco will also receive one sample for analysis during the second sampling round.

During the second ground water sampling event O'Brien and Gere will collect 25 additional samples from the ground water and first confined aquifers and analyze these samples for trace metals and inorganics. In addition, a total of three water table aquifer samples will be collected and analysed for priority pollutant organics. One first confined aquifer sample will be collected for metals, inorganics, priority pollutant metals and cyanides. Ebasco proposes to receive a total of three water table sample splits for analysis of metals and inorganics, one sample split for metals, inorganics and TCL organics, and one first confined aquifer sample for metals, inorganics, TCL metals and cyanide.

Ebasco will receive field blank sample splits from O'Brien and Gere as identified in Table 2-2. A trip blank will be submitted for laboratory analyses during oversight of the second ground water sampling event. In addition, 3 contaminant-free water samples will be submitted for laboratory analysis during the oversight program.

In Appendix A of the FSAP, O'Brien and Gere's site investigaton schedule, sampling efforts, sampling locations, and analytical

program are provided. A site location map and layout are also included. The information in Appendix A is taken from O'Brien and Gere's Final Work Plan (POP) dated May 4, 1987.

2.2 REM III FIELD TECHNICAL GUIDELINES

Ebasco's Field Technical Guidelines developed for the REM III Program are intended to provide general technical guidance for project activities and to ensure quality of work. The guidelines do not take precedence over the requirements of the project plans and procedures, and several have been modified accordingly for the needs of this project (see Section 3.2 of this plan). A list of applicable guidelines appears below:

FT-7.05 - Sample Identification and Chain-of-Custody

FT-7.06 - Sample Preservation

FT-7.07 - Sample Packing and Shipping

FT-13.03 - Site Logbook

2.3 PERSONNEL RESPONSIBILITIES

The field team will consist of the following personnel:

- Field Operations Leader/Field Geologist - responsible for oversight activities and collection, packaging and shipping of split samples.

- Site Health and Safety Officer (if necessary) - responsible for the safety of all Ebasco site personnel. It is anticipated that daily health and safety activities will be directed by the O'Brien and Gere H&S officer. If O'Brien and Gere does not accept this responsibility or if the Ebasco Company Health and Safety Suprvisor determines that site conditions warrant a dedicated Ebasco H&S officer, then such a person will be assigned to the site.

2.4 SAMPLE IDENTIFICATION

Each sample will be designated by an alphanumeric code, which will identify the project site, sample type, sample site, the depth, and then site location. Blanks will <u>not</u> be specifically identified as such in the sample number but will have a different (sequential) number. The sample numbers will be recorded on the sample label and in the field logbook.

The project code for the NLI Site is NLI.

The sample type will be either soil (SO), slag (SL), solid (SX) or liquid (LX) waste, groundwater (GW), sediment (SD) or surface water (SW).

2.5 SAMPLE CONTAINER AND VOLUME REQUIREMENTS

Sample container and volume requirements are specified in Table 2-3.

2.6 SAMPLE HOLDING TIMES

Sample holding times are specified in Table 2-3 for EPA analysis.

2.7 SAMPLE PACKAGING AND SHIPPING

Samples should be packaged and shipped according to the EPA CLP Users Guide and Guideline FT-7.07. When sample shipments are to be sent, the Sample Management Office will be telephoned on that day or the following morning, to be notified of the shipment, airbill number, and number and type of samples being shipped.

2.8 DOCUMENTATION

The Field Operations Leader is required to keep a field notebook. This field notebook will be a bound weatherproof logbook that is to be filled out in the contaminated area at the sites of sample collection. It will contain sample particulars including sample number, sample collection time, sample location, sample descriptions, sampling method used, weather conditions, field measurements, name of sampler, and any other site specific observations. In addition, it will include details on deviations from protocol, visitor's names, community contacts, lab addresses, etc., and details on activities at the site as specified in Guideline FT-13.03.

Chain-of-Custody Forms, Sample Labels, Custody Seals, and other sample documents will be filled out as specified in the CLP User Manual and in accordance with EPA Region II protocol.

The Site Manager will retain all records in a designated project file.

3.0 SAMPLING

3.1 NUMBER, LOCATION AND TYPES OF SAMPLES

The numbers and types of samples, sampling locations preservation techniques, analytical methods, holding times, field measurements and lab analyses are summarized in Table 2-3 and details of O'Brien and Gere's programs presented in Appendix A. Detailed specifications are given in the EPA-approved Final Project Operations plan prepared by O'Brien and Gere.

3.2 SPLIT SAMPLING METHODS

O'Brien and Gere will collect all samples and supply Ebasco with the split samples. Ebasco will provide O'Brien and Gere with sample containers (for those aqueous samples to be split in the field).

3.2.1 Soil Samples

Soil samples will be sampled by O'Brien and Gere in accordance with the procedure outlined in Appendix C of their Site Operations Plan (SOP). Samples to be split will be identified at the time of collection by Ebasco's Field Operations leader or his designee. Following collection, O'Brien and Gere will ship all soil samples to their own laboratory for compositing, homogenizing, and sieving according to the procedures defined in their Site Operations Plan (SOP). O'Brien and Gere will subsequently collect splits of those samples previously identified by Ebasco. Split samples will be submitted by O'Brien and Gere directly to the appropriate EPA-CLP laboratory for analysis.

3.2.2 Containerized Solids and Equipment Residues

Containerized solid samples will be sampled by O'Brien and Gere in accordance with procedure outlined in Appendices D & E of their Site Operations Plan. As with soil samples, containerized solid and equipment residue samples to be split will be identified in the field by Ebasco. Samples will be split by O'Brien and Gere after homogenizing and seiving in their laboratory. O'Brien and Gere will then ship split samples directly to the appropriate CLP laboratory for analysis.

3.2.3 Containerized Liquid Samples

Containerized liquids will be sampled in accordance with the procedure outlined in Appendices E and F of O'Brien and Gere's SOP. For split sampling procedures, the total volume of the containerized liquid required for split samples should be placed in a suitable decontaminated stainless steel mixing container of sufficient size to hold the confined sample volume. The sample

should be thoroughly mixed with a stainless steel spoon or other appropriate instrument and then poured into the respective containers.

3.2.4 Sediment Samples

Sediments will be sampled in accordance with Appendix H of O'Brien and Gere's SOP. Sediment samples will be split in the same manner as soil samples. Samples to be split will be identified in the field by Ebasco. O'Brien and Gere will collect sample splits and following compositing and sieving of the appropriate samples in their own laboratory. These split samples will be submitted directly by O'Brien and Gere to the EPA-CLP laboratory for analysis.

3.2.5 Surface Water, Ground Water and Water Supply Samples

Surface waters and ground waters will be sampled in accordance with the procedure outlined in Appendices G and I of O'Brien and Gere's SOP. For split sampling procedures, samples should be collected at the same location, depth and time. However, samples should be collected as duplicates. Split samples should come from the same surface water sample or ground water bailer as the original sample. Where additional volume is needed, a second surface water or ground water sample should be collected and distributed between the original sample and the split until the required sample volume is obtained. Sequential samples should not be mixed in an intermediate container prior to distribution to the sample containers.

For volatile organic analyses in ground water, the monitoring well sampling bailer will have sufficient volume for the split samples. Each sample container should be filled from the same sampling bailer.

For groundwater samples which are to be split and which are also to be filtered prior to metals analyses by O'Brien and Gere, Ebasco will receive a filtered split. In these cases Ebasco will receive a sample split from O'Brien and Gere after the groundwater sample has been filtered.

O'Brien and Gere will perform the field measurement of pH and specific conductance in the split water samples under Ebasco's supervision. The Ebasco Field Operations Leader will record the measured pH and specific conductance values in the site logbook. Any observed deviations from the Project Operations Plan will be recorded by the Field Operations Leader in the site logbook.

3.3 DECONTAMINATION

All equipment involved in field sampling activities will be decontaminated prior to and subsequent to sampling. Equipment

leaving the site will also be decontaminated as called for in the Health and Safety Plan.

Extraneous contamination and cross-contamination will be controlled using the decontamination procedure and by thoroughly decontaminating or changing sampler's gloves between samples.

Personnel directly involved in equipment decontamination will wear protective clothing, as specified in the Health and Safety Plan.

3.4 QA/QC PROCEDURES FOR FIELD CHANGES AND CORRECTIVE ACTION

3.4.1 Field Changes and Corrective Action

In the event that O'Brien and Gere personnel wish to deviate from the approved Site Operations Plan, they shall inform the Ebasco Field Operations Leader who will then document the changes on a Field Change Request Form (see Figure 3-1) and notify the Site Manager about the changes. The Site Manager will notify the EPA Remedial Project Manager about the changes made by O'Brien and Gere. If they determine the changes to be unacceptable, they will evaluate the changes with the O'Brien and Gere Project Manager in order to determine the significance of any departure from established program practices and action taken. If the changes made by O'Brien and Gere cause any changes of this FSAP. The following corrective action should be followed.

The Site Manager or his designee is responsible for all site activities. In this role the Site Manager at times is required to adjust the site programs to accommodate site specific needs. When it becomes necessary to modify the program, the Field Operations Leader will notify the Site Manager of the anticipated changes and implement the necessary changes. The Regional Manager and the EPA Remedial Project Manager will be notified if the changes are substantial. If the changes made are later determined to be unacceptable, the action taken during the period of deviation will be evaluated in order to determine the significance of any departure from established program practices and action taken.

The changes in the program are documented on a Field Change Request Form which is signed by the initiator and Site Manager. A typical Field Change Request Form utilized to document field changes is shown on Figure 3-1. The FCRs for each document shall be numbered serially starting with the number "1".

The Site Manager is responsible for the controlling, tracking and implementation of the identified changes. Completed field change requests are distributed to affected parties which will include as a minimum: Regional Manager, Site Manager, Field Operations Leader and Quality Assurance Manager.

FIGURE 3-1

EBASCO SERVICES INCORPORATED
FIELD CHANGE REQUEST

EPA Work Assignment No. EBASCO >Work Charge >Number Field Change No. FCR

To_____Location_____Date_____

Description:

Recommended Disposition:

Field Operations Leader (Signature) Date

Disposition:

Site Manager Date

Distribution: Regional Manager Others as required _____
Quality Assurance Manager _____
Site Manager _____
Field Operations Leader _____

APPENDIX A

SUMMARY OF O'BRIEN AND GERE'S PHASES I AND II FIELD WORK

Note: Information presented in this appendix is taken from O'Brien and Gere's Final Work Plan dated May, 1987

Table 3
Pedricktown RI/FS
Analytical Program

Sample Matrix	Lab Sieve[1]	Digestion	Filtration	Analytical Series[2] A	B	C	D	E	F	G	H	I
Soil	140	140	-	140	14	-	-	-	-	-	-	-
Slag	3	3	-	3	-	3	-	-	-	-	-	-
Equipment Residue	10	10	-	10	[3]	-	-	-	-	-	-	-
Containerized Solids	25	25	-	25	[3]	-	-	-	-	-	-	-
Containerized Liquids[4]	-	-	-	20	-	-	20	20	-	-	4	-
Surface Water												
- Round 1 Water	-	-	-	11	1	-	11	-	-	-	-	-
- Round 2 Water	-	-	-	11	1	-	11	-	-	-	-	-
- Sediment	-	11	-	11	1	-	-	-	-	-	-	-
Marsh Sediment	-	8	-	8	-	-	-	-	-	-	-	-
Groundwater												
- Water Table Aquifer												
Round 1	-	-	24	-	-	-	-	-	24	3[5]	-	-
Round 2	-	-	24	-	-	-	-	-	24	-	-	3[6]
- 1st Confined Aquifer												
Round 1	-	-	4	-	-	-	-	-	4	1	-	-
Round 2	-	-	4	-	-	-	-	-	4	1	-	-
- Off-site												
Round 1	-	-	-	-	-	-	-	-	9	-	-	-
Round 2	-	-	-	-	-	-	-	-	9	-	-	-

Notes:

(1) - Lab sieving indicates that soil samples will be sieved through a sixteen mesh stainless steel sieve after drying (8 hrs. at 100 C, or until dry), prior to analysis. Slag samples will be crushed and sieved through a 9.5 mm standard sieve in the laboratory prior to analysis.

(2) - A indicates total lead.
B indicates antimony, arsenic, cadmium, chromium, copper, selenium, tin, and zinc.
C indicates EP Toxic metals.
D indicates pH.
E indicates TOC.
F indicates antimony, arsenic, cadmium, chromium, copper, lead, selenium, radium, gross alpha and beta, sulfate, chlorides, pH (field), conductivity (field), TOC, and TOH.
G indicates cyanide and priority pollutant metals.
H indicates TOH, gross alpha and gross beta.
I indicates priority pollutant organic chemicals.

(3) - Total metal analysis will be conducted on unknown samples.

(4) - Actual numbers of samples will be determined in the field, as discussed in section 6.01.2. For estimating purposes, it is anticipated that 20 samples will be obtained.

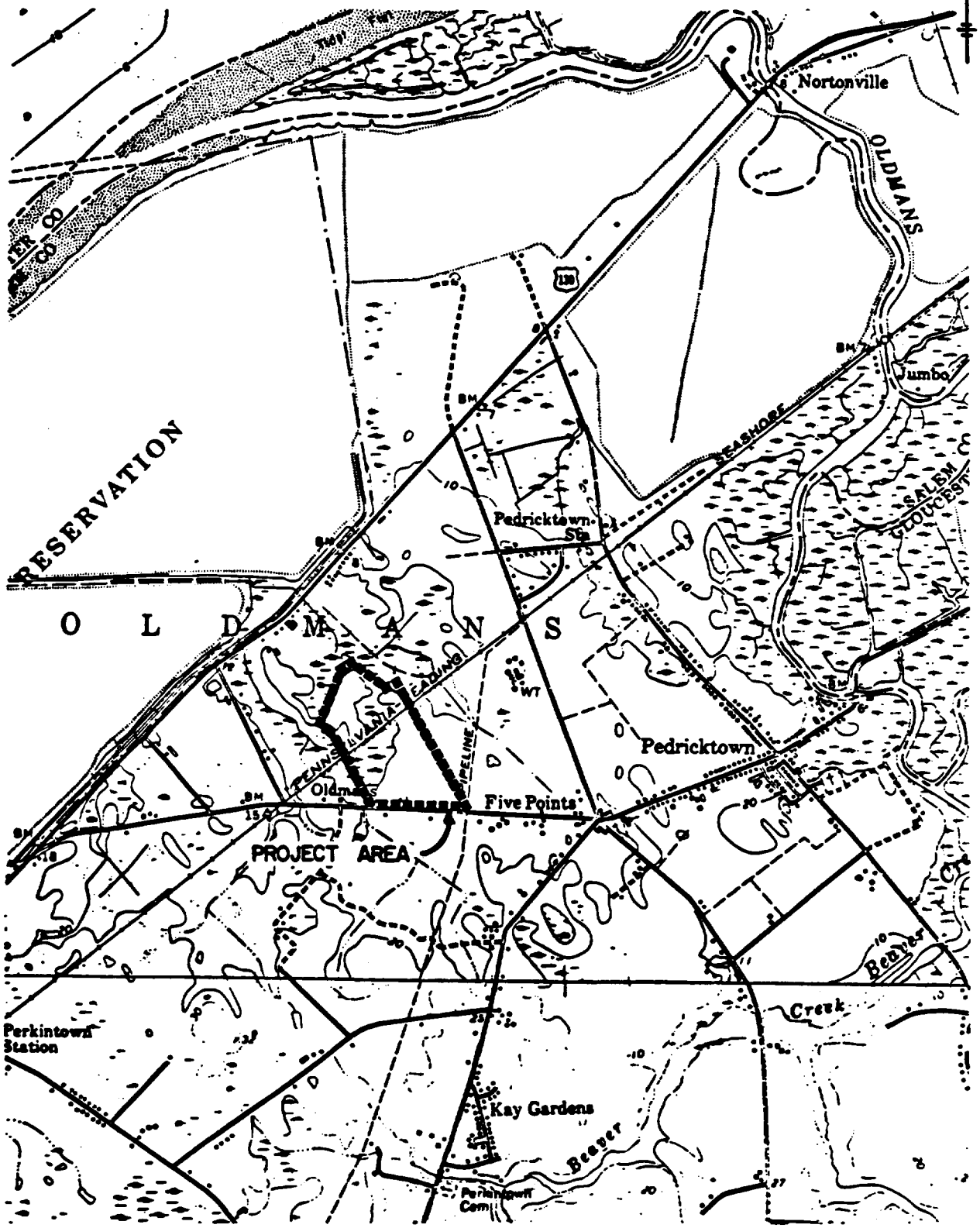
(5) - Any of the parameters identified in any of these three samples within 75% of Primary Drinking Water Standards will be added to all well samples in subsequent sampling and analysis.

(6) - As determined from TOC and TOH results of first round sampling.

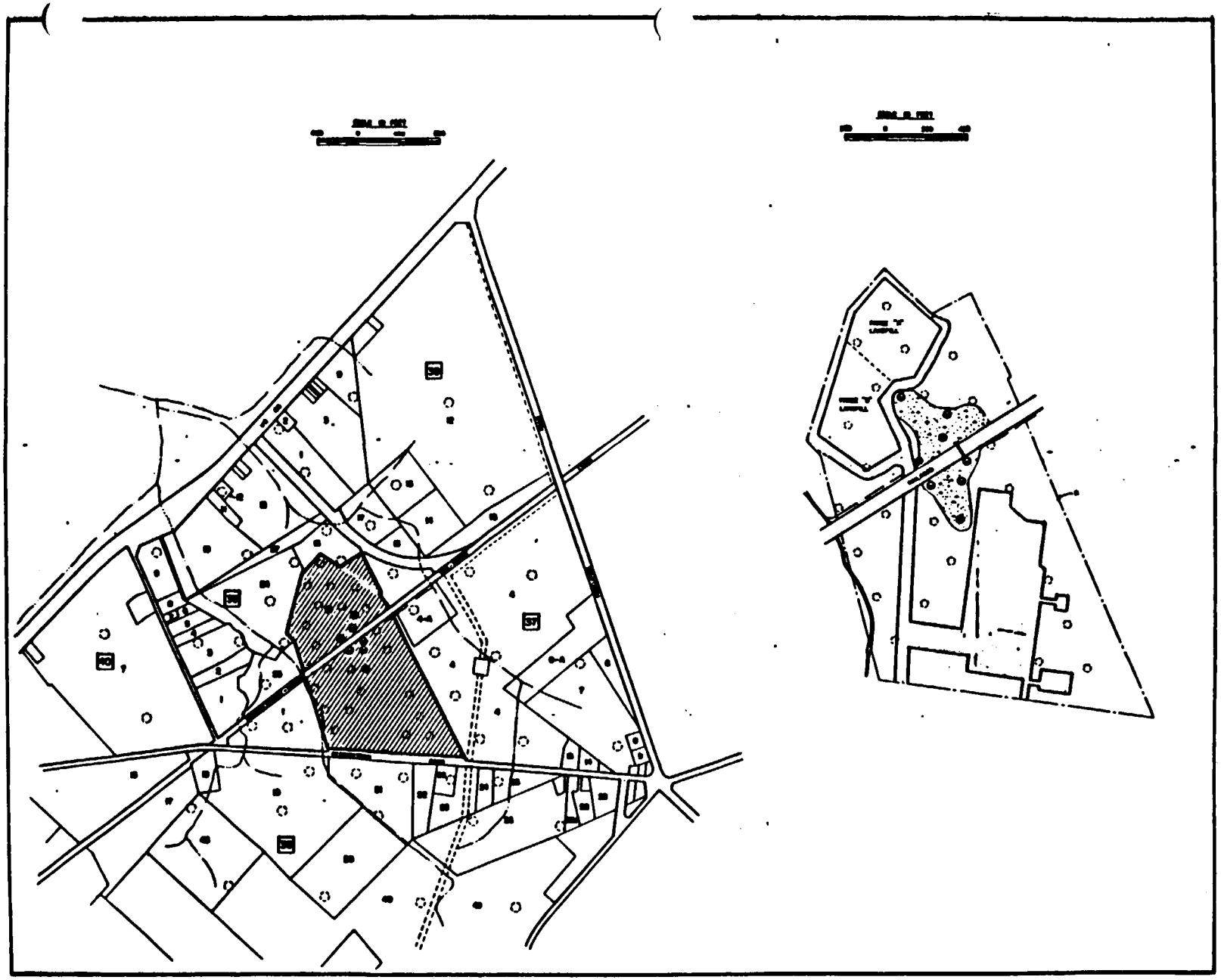
FIGURE 1

NL INDUSTRIES, INC.
PEDRICKTOWN, NEW JERSEY

PROJECT LOCATION MAP



NOTE: Map adapted from U.S.G.S. Marcus Hook, Pa. – Penns Grove, N.J. Quadrangles



N

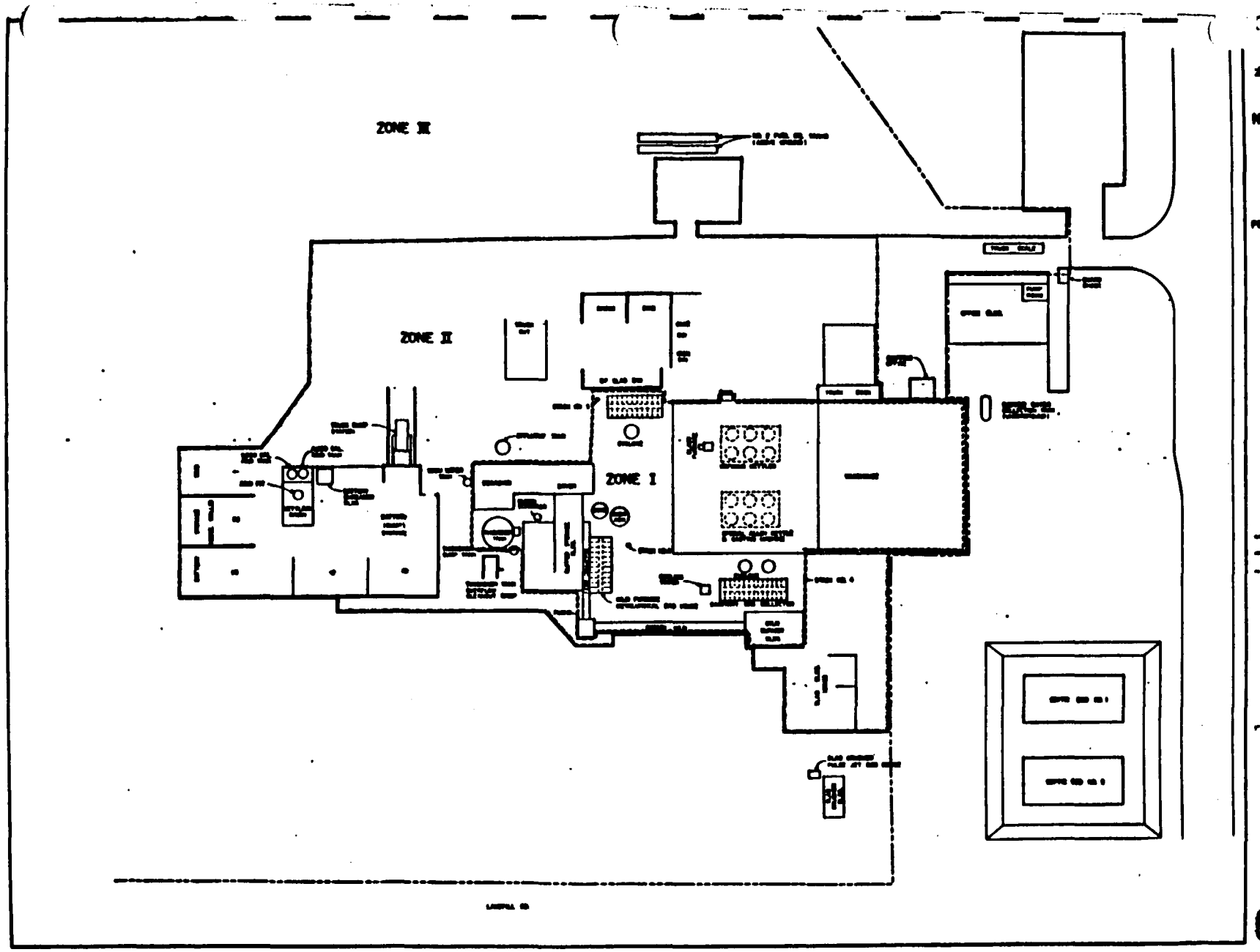
NL INDUSTRIES, INC.

NATIONAL SMELTING
OF NEW JERSEY
PEDRICKTOWN, NEW JERSEY

SOIL SAMPLE LOCATION MAP

O'BRIEN & GERE

NLI 001 0535



NL INDUSTRIES, INC.

NATIONAL SMELTING OF NEW JERSEY PEDRICKTOWN, N.J. FACILITY

SITE MAP

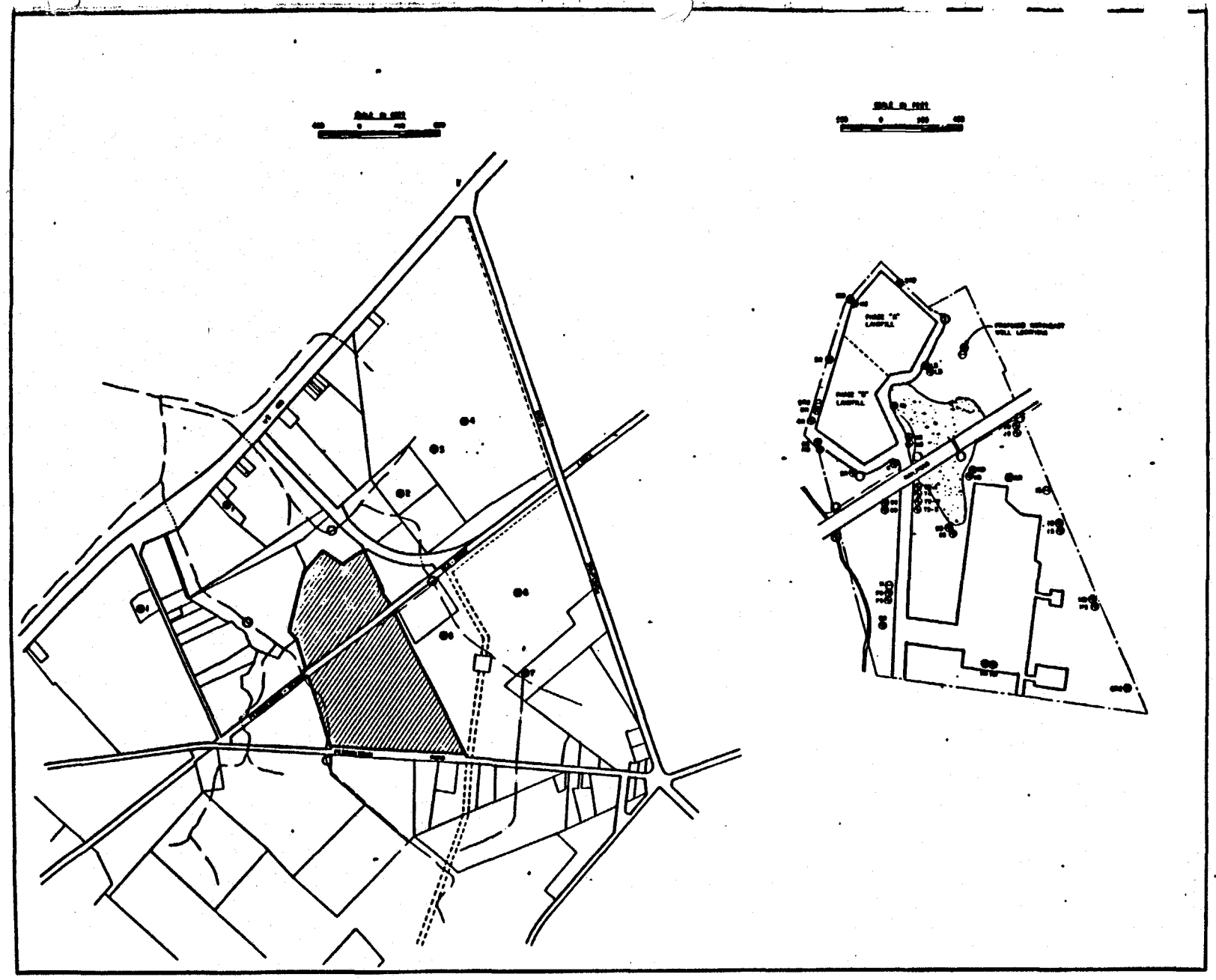
LEGEND

SCALE

GENERAL NOTES

O'BRIEN & GERE

NLI 001 0536



NL INDUSTRIES, INC.

NATIONAL SMELTING
OF NEW JERSEY
PEDRICKTOWN, NEW JERSEY

WELL LOCATION MAP

LEGEND

- PROJECT AREA
- BUILDINGS, ROADS, OR PAVED AREAS (APPROX.)
- MARSHLAND
- WATER TABLE AQUIFER WELL
- OFF-SITE WELLS
  1. SPRUCE SPRING
  2. B.F. GOODRICH
  3. B.F. GOODRICH
  4. B.F. GOODRICH
  5. NO STRIP CHEMICAL CO.
  6. AMCO INDUSTRIAL GASES
  7. BROWNING - FERRIS
- FIRST CONFINED AQUIFER WELL
- SECOND CONFINED AQUIFER WELL
- SURFACE WATER/SEDIMENT SAMPLE

O'BRIEN & GERE
O'Brien & Gere Engineers, Inc.

NLI 001 0537